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Searches for vector-like quarks, $t\bar{t}$ resonances and W' to $t\bar{b}$ with ATLAS and CMS

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33: New physics Searches with Top-Like Final States

In many models of physics beyond the Standard Model the coupling of new physics to third generation quarks is enhanced and signatures are expected that mimic top production. We present a review of non-MSSM based searches for new physics beyond the standard model in final states containing top quarks and/or bottom quarks. This includes searches for heavy gauge bosons, excited quarks, chiral and vector-like top quark partners. The searches span a range of final states, from multi-leptonic to entirely hadronic, and many results use novel analysis techniques to reconstruct the highly boosted final states that are created in these topologies. The searches are performed on data collected with the CMS experiment in proton-proton collisions at the LHC at a centre-of-mass energy of 7 and 8 TeV.

107: Searches for vector-like quarks, $t\bar{t}$ resonances and W' to $t\bar{b}$ with the ATLAS detector (joint with the TOP group)

Various extensions of the Standard Model predict the existence of new types of quarks. We report on several search channels such as vector-like quarks decaying to a Higgs boson and a top quark or to a W boson and a b quark or to a Z boson and a b or top quark. The talk presents results from searches for new resonances decaying to a top-antitop or a top-b-jet pair, including the use of boosted top quark reconstruction techniques. These searches use the data sample recorded in 2012 at $\sqrt{s}=8$ TeV centre-of-mass energy by the ATLAS experiment at the LHC.

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